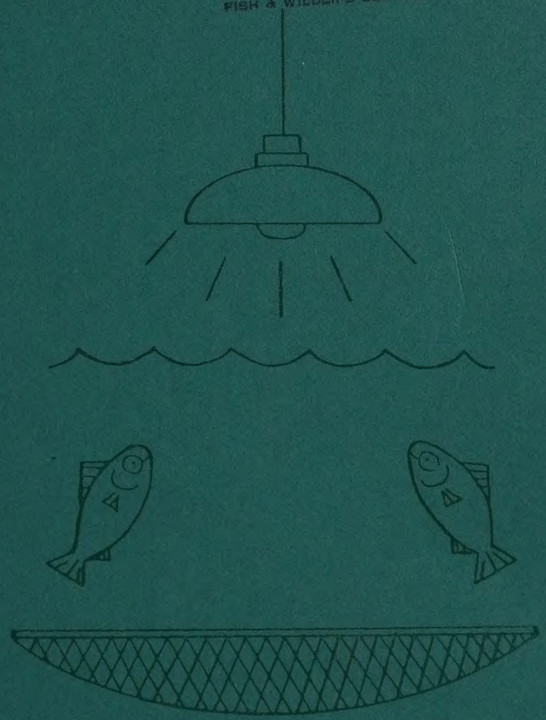
#638

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE

A LIFT NET FOR CATCHING BAIT FISH ATTRACTED TO LIGHT

LIBRARY
MAY 13 1971
FISH & WILDLIFE SERVICE



Fishery Leaflet 638

NOTE

Until October 2, 1970, the National Marine Fisheries Service, Department of Commerce, was the Bureau of Commercial Fisheries, Department of the Interior.

UNITED STATES DEPARTMENT OF COMMERCE
Maurice H. Stans, *Secretary*

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Dr. Robert M. White, *Administrator*

NATIONAL MARINE FISHERIES SERVICE
Philip M. Roedel, *Director*

A LIFT NET FOR CATCHING BAIT FISH ATTRACTED TO LIGHT

By

HILTON M. FLOYD

Fishery Leaflet 638

Seattle, Washington
April 1971

A LIFT NET FOR CATCHING BAIT FISH ATTRACTED TO LIGHT

By

HILTON M. FLOYD
Fishery Methods and Equipment Specialist

Exploratory Fishing and Gear Research Station
South Atlantic Fisheries Explorations
Brunswick, Georgia 31520

ABSTRACT

Construction and operation of the gear are described. The chief attributes of the gear are its light construction and single-handed operation.

INTRODUCTION

This paper describes the construction and operation of an effective means for collecting small bait fish such as anchovies, sardines, chub mackerel, thread herring, and cigarfish.

The gear is small and portable and can be easily handled by one man from a boat, dock, or bridge. Because the net is light, its use is limited to areas of little or no current.

A trap lift net for catching tuna bait fishes has been used successfully in currents of 1 to 2 knots and in winds of 18 to 24 miles per hour (Siebenaler, 1953), but that net requires at least two persons to operate it. The gear described by Siebenaler should be used when large quantities of bait fishes are required.

All materials needed to construct the described gear are readily available at hardware stores, lumber yards, or commercial fishermen's suppliers.

MATERIALS REQUIRED

Dimensions given are adequate for most circumstances but may be altered to suit individual needs.

The materials needed to construct and rig a 5-foot diameter lift net are as follows:

1. One hoop 5 feet in diameter made of ½-inch stainless steel rod with three evenly spaced 1-inch (opening) pad eyes.
2. One piece of ¾-inch stretched mesh, No. 3 nylon netting 377½ meshes long by 100 meshes wide.
3. One piece of No. 3 nylon twine about 13 feet long (for sewing together ends of netting).
4. One piece of No. 9 spun nylon twine about 45 feet long (for hanging netting to hoop and closing bottom).
5. One "minnow" net needle.
6. One piece of 2-inch by 4-inch by 12-foot knotless pine lumber (or other of comparable strength).
7. One piece of 2-inch by 4-inch by 5-foot knotless pine lumber (or other of comparable strength).
8. One 6-inch long ⅜-inch galvanized bolt with nut.
9. Two 4-inch long ⅜-inch galvanized eyebolts with nuts.
10. Two 2½-inch long ⅜-inch galvanized eyebolts with nuts.
11. Six 1-inch diameter galvanized washers with ⅜-inch holes.

Contribution No. 227.

12. Thirty-five feet of ½-inch diameter nylon rope.

13. One 20-foot electrical extension cord for 12 volts with standard light socket, reflector, and battery clips. Many types of lights can be used, such as gas lanterns, battery lanterns, and fuel lanterns.

14. One 100-watt, 12-volt light bulb.

15. One 12-volt battery.

CONSTRUCTION

Prepare the netting for hanging-in (i.e., securing to the hoop) by sewing the two ends together to form a tube. A net needle is used for sewing (Fig. 1).

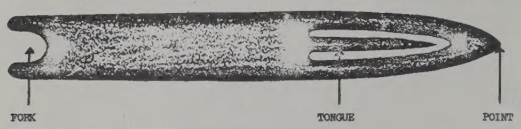


FIGURE 1.—Parts of a net needle.

To fill the net needle, take several turns around the base of the tongue with the end of the sewing twine (No. 3 nylon), wind the twine down the flat side, around the fork, up the opposite side, then around the tongue, and back to the other side. Continue winding the twine tightly on the needle until it is full but make certain the needle is not too full to pass freely through the meshes (Floyd, 1965).

A sheet or becket bend (Fig. 2) is used in sewing the ends of the netting together 100 meshes as shown in Figure 3.

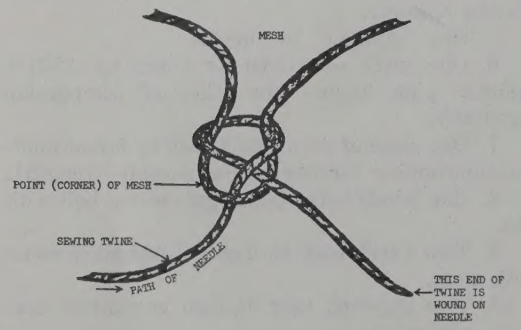
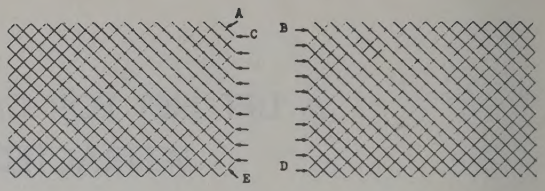


FIGURE 2.—Sheet or becket bend used for sewing netting together.



All knots are tied in the corner of the mesh indicated by an arrow.

Tie the end of the sewing twine (No. 3 nylon) on at point A leaving 3/4 inch of sewing twine, then tie on at point B. Next, tie on at point C, leaving 3/8 inch of sewing twine between knots B and C. Leave 3/8 inch of sewing twine between all knots from B to D. Leave 3/4 inch of sewing twine between knots D and E (the finishing point).

NOTE: Two knots are never made in succession on the same side of the seam. Make sure there are no twists in the netting before sewing the ends together.

FIGURE 3.—Method of sewing the ends of netting together.

The netting is now ready to be secured to the hoop with a series of clove hitches (Fig. 4). Suspend the hoop in a horizontal position at a convenient height and follow the instructions in figure 5 to hang the netting to the hoop.

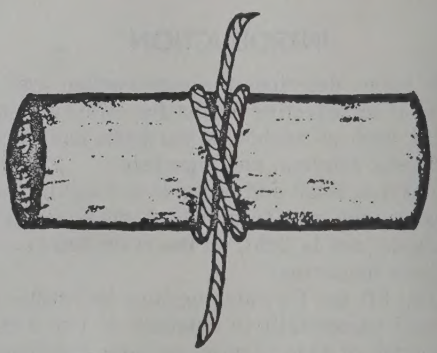
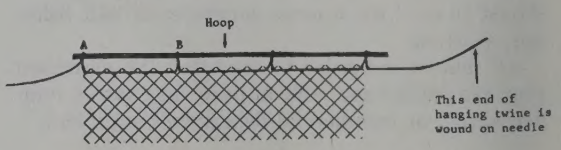


FIGURE 4.—Clove hitch.



With the No. 9 spun nylon twine tie a clove hitch around the hoop at point A. Then pass the needle through 6 meshes on the edge, take up the hanging twine until the netting hangs about 1/2 inch below the hoop, leave 3 inches between points A and B, and then tie on at point B. Repeat, passing the needle through the next 6 meshes and tying to the hoop until the ends of hanging twine can be tied together at point A.

FIGURE 5.—Hanging-in guide.

Next, pass a piece (about 1-foot long) of the No. 9 spun nylon twine through all the meshes at the bottom edge of the netting. Pull the twine, tightly puckering all the meshes together, and knot tightly to form a bag of the netting. This completes the lift net.

The lift net is rigged from a wood "T" frame, which is lashed to a boat, dock, or bridge, and which extends out horizontally over the water. Figure 6 shows how to complete the rig.

OPERATION

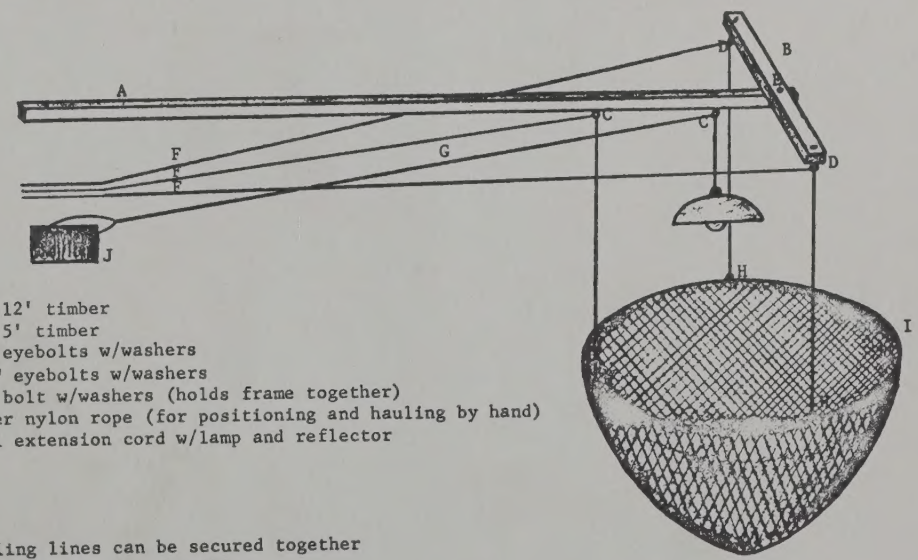
The ideal conditions for fishing with a light and lift net are a still, dark night and clear water. The lift net can be used in any body of water to catch fish attracted to light.

When starting to fish, the light should be high above the water during the initial period, and the net lowered fairly deep to allow room for attracted fish to congregate under the light. After fish have been attracted, lower the light until the beam at the surface of the water is about the same diameter as the hoop. When the fish are concentrated above the hoop, haul the net quickly to keep fish from escaping. Behavior of the fish under the light will determine the best depth to which the net should be lowered. The net should be as close to the fish as possible before the haul is made. A small weight inside the net helps hold it in position in weak currents. To keep bait fish alive avoid crowding and injury; haul the net only as high as needed to keep fish from jumping over the hoop. The most convenient method of removing bait fish from the lift net is to use a dip net (available at most sport and commercial fishermen suppliers)

LITERATURE CITED

FLOYD, HILTON M.
1965. Castnets constructed of machine-made netting. Wildl. Serv., Fish. Leafl. 579, 13 p.

SIEBENALER, J. B.
1953. Trap lift net for catching tuna bait fishes. Commer. Fish. Rev. 15(8). 14-17.



A. 2" x 4" x 12' timber
B. 2" x 4" x 5' timber
C. 4" x 3/8" eyebolts w/washers
D. 2½" x 3/8" eyebolts w/washers
E. 6" x 3/8" bolt w/washers (holds frame together)
F. ½" diameter nylon rope (for positioning and hauling by hand)
G. Electrical extension cord w/lamp and reflector
H. Pad eyes
I. Hoop
J. Battery

'NOTE: Hauling lines can be secured together for convenience in handling.

FIGURE 6.—Lift net, rigged.

GPO 998-290

UNITED STATES
DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
SCIENTIFIC PUBLICATIONS UNIT
BLDG. 67, NAVAL SUPPORT ACTIVITY
SEATTLE, WASHINGTON 98115

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE